Letter to the Editor

STRUCTURE OF THE SPECTRUM OF SINGLY IONISED BROMINE

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The line spectrum of singly ionised bromine (Br II) was investigated by Bloch and Lacroute (1934), Lacroute (1935), and Rao and Ramanadham (1944); the term values known till now are collected by Moore (1952). Still several strong lines in the spectrum remain unclassified, and the analysis is far from complete. An extensive study of the spectrum has been made over the range from λ 9000Å to λ 400Å with spectrographs of small and large dispersion. Several levels have been newly determined by which about 250 additional lines are classified. The new levels with their designations and J values are given in table below in ascending order of magnitude calculated with respect to the ground level $4p^4\ {}^3P_2$ as zero; the notation is that adopted by Moore.

Details of the analysis will be published shortly.

TABLE I

Designation	J	Level	Designation	J	Level	Designation	J	Level
$4p^4\ {}^1D$	2	12098	$5p''\ {}^3_S$	1	142839.9	$5d'\ {}^1G^\circ$	4	**156963.8**
$4p^4\ {}^1S$	0	27876	$5p''\ {}^3_P$	0	143148.1	$5d'\ a^\circ$	3	**157226.9**
				1	145601.6			
$4p^5\ {}^3P^\circ$	2	**96439.4***				$5d'\ {}^3D^\circ$	1	**157369.7**
				2	145921.5			
	1	**98807.3***					2	**157632.8**
	0	**100242.2**	$5p''\ {}^1_S$	0	143486.4		3	**157808.3**
$4d\ {}^5D^\circ$	4	**104097.9**	$5p''\ {}^1_P$	1	144517.7	$5d'\ b^\circ$	2	**158327.4**
	3	**104044.6**						
			$5p''\ {}^1_D$	2	145370.0	$5d'\ {}^1F^\circ$	3	**158414.5**
	2	**104087.2**						
	1	**104152.3**	$4f\ {}^5_F$	5	145931.6	$5d'\ {}^3P^\circ$	0	
	0	**104206.6**		4	145929.9		1	**159778.4**
				3	145934.0		2	**159910.8**
$4p^5\ {}^1P^\circ$	1	**113342.8**						
				2	145937.9	$5d'\ c^\circ$	2	**160449.7**
$4d'\ {}^3F^\circ$	2	**117744.6**		1	145941.6			

TABLE I (*Contd.*)

Designation	J	Level	Designation	J	Level	Designation	J	Level
4d′ ^{3}F	3	118509.1	4f ^{3}F	2	146087.5	4f′ ^{3}G	3	160884.4
	4	119432.1		3	146081.3		4	
4d′ ^{1}G	4	122191.9		4	146095.6		5	
4d′ ^{1}F	3	122720.7	6s′ ^{3}D°	1	151357.8	5d′ ^{1}D°	2	160887.7
5s″ ^{1}P°	1	125058.7		2	151502.3	4f′ a	2	161132.8
4d′ ^{3}D°	1	126788.2		3	152380.6	4f′ ^{1}H	5	161289.7
	2	127687.7	6s′ ^{1}D°	2	152832.3	4f′ ^{1}D	4	161526.4
	3	127940.6	5d′ ^{1}P°	1	155148.0	4f′ ^{1}G	2	161896.2
4d′ ^{1}D°	2	128890.5	5d′ ^{3}G°	3	156116.1*	4f′ ^{3}F	4	162210.2
5p″ ^{3}D	1	142095.3		4	156152.3*		3	162255.9
	2	142854.1		5	156756.6		2	162313.9
	3	143704.8	5d′ ^{3}g°	1	156512.2			
4f′ ^{3}D	3	162344.0	6s″ a°	2	166487.2	5d″ c°	2	169676.2
	2	161169.1	6s″ ^{1}P°	1	167439.0	5d″ d°	2 or 3	169768.9
	1	162395.7	5d″ a°	2 or 3	169127.6	5d″ ^{1}D°	2	170703.1
4f′ ^{1}F	3	162364.6						
6s″ ^{3}P°	0		5d″ b°	2 or 3	169368.1	5d″ ^{1}P°	1	170827.4
	1	165329.3						
	2							

*Identified in previous investigations.

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